

Discussion on Some Features of Innovative System of Professional Training*

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Abstract—A picture of the modern condition of domestic professional education that is in progress of reformation and showing some certain contradictions is presented. The contradictions and difficulties of education process in high school are listed. The ways of active search and update of the modern domestic education system are reviewed. The creation of innovative education system as a creative process is one of them.

Keywords—*model; professional training; modern specialist; dynamism; contradiction; innovative system; creation*

I. INTRODUCTION

Within the expanding borders of the modern process of transformation of educational policy of the universities of Russian Federation, the tendencies of turning to the interests of labor market and mastering the paradigm of “lifelong” education are particularly evident. And this is understandable. Modern era is characterized by two serious circumstances: the tectonic shift in economics, called “the Fourth Industrial Revolution” by K. Schwab, and the increase in the numbers of people inhabiting Earth. In this situation the task to be integrated into the ongoing processes on the level of society in general and on the level of every single individual, which is facing the education system, is becoming increasingly difficult.

Digitalization of industry as the base of the new industrial revolution forms the new value of the new economy — these and new factors of economic development — innovation and creativity. Technology unrecognizably

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and rapidly transforms the world, “blurs the borders between the physical, digital and biological spheres” (K. Schwab), changes the labor market [1]. Automation replaces the human labor in areas that require routine labor or great physical strength.

The second circumstance has such consequences as the aging of population aging and unequal access to education. In such conditions the necessity of continuing and life-long education is felt with particular urgency, which inevitably leads to changes in the education system. As it's known, continuing education is divided in three segments: formal education, non-formal education (this also applies to corporate education) — in the form of mentoring, internship, coaching, training, and informal or self-education (using, for example, Coursera, TED, YouTube etc). Each of these segments sets new challenges.

One of the strategic landmarks of the Russia's development, declared in Strategy-2020, is the formation of the personnel potential of the country. This implies the training of a specialist who's professionally mobile and stable on the labor market. The formation of high-performance labor market requires radical rebuilding of the system of specialist training, the change in the philosophy of education, the revision of its objectives towards practical directions and, as a result, the change of the organization of educational process in university itself, regarding its consistency, integration, innovation and humanization. The realization of the principles of scientific, pedagogical complexity (upbringing, education, development), humanism and civic consciousness act as a pledge of successful formation of the key professional competences and social psychological development of future specialists.

II. THE MODEL OF MODERN STATE OF PROFESSIONAL TRAINING

The modern system of higher education is developing following three well-shaped tendencies: 1) transformation of the educational paradigm from the so-called “KSP” (knowledge, skill, proficiency) to the competence paradigm and the creation of the new profile of the future specialist; 2) updating the contents of studied disciplines according to the changes on the labor market; 3) development of methodical support of educational process of specialist training in the context of social economic processes of automation, technicalization and other changes affecting the professions.

For example, in the report “Automation, productivity and labor market”, made by McKinsey experts, it is said that the first people who can lose their jobs as a result of automation are blue collar workers. At this moment, full automation can't affect more than 5% of currently existing occupations, but partial automation will change more than a half of directions of activity, they say. Next in line are white collars (managers, officials, intellectual workers), since artificial intelligence is already capable of performing challenging operation and make decisions. According to McKinsey estimates, by 2030s, because of the technology developments, 3-14% of all workforce will become unemployed or will have to change their occupation [2].

As to the list of the demanded trades in the future, according to the “Atlas of new professions”, made by Moscow School of Management “Skolkovo” and the Agency of strategic initiatives, according to conducted study “Foresight of competencies 2030”, by 2030 186 new professions will emerge and 57 will disappear. For example, the occupations of accountant, dispatcher, operator of public services, real estate agent and journalist. The occupations of robotics engineer, specialist in modernizing building technology, digital linguist and moderator of personal charity programs will appear [3].

The recent attempts of rationalized study and comprehension of the modern practice of University education allow to highlight some areas of educational activities which, together, create a model of modern condition of professional training. Obviously, it's hard to make a comprehensive picture of such a dynamic system as Russian education, so the proposed model can't be accepted unconditionally. It's main components are as follows:

- change in the nature of the education itself, which is supposed to help a specialist to solve new, nonstandard professional, personal and socially significant problems of modern life;
- development of new directions of specialist training, creation of new specialties, development of existing programs with an orientation on the needs and priorities for the development of society;
- close connection to the fundamental science, interdisciplinary approach to education;
- early professionalization and specialization;

- competitiveness of education;
- use of cognitive and personality-oriented technologies of specialist training, which would lead to the activation of their cognitive and intellectual activities;
- diverse didactic tool set, which allows to correlate the goals of study and individual potential of the students.
- compliance with the principle of personal individualization of study, when every student realizes their own need for knowledge and later receives the opportunity to integrate it into their professional activities.

III. MAIN CONTRADICTIONS OF RUSSIAN SYSTEM OF PROFESSIONAL TRAINING

Whereas the modern domestic system of professional training possesses a significant theoretical and technological potential, it is still possible that its current condition is characterized by a certain set of contradictions. This is not surprising, since such state is typical for any area that is undergoing a reformation.

When analyzing the education process as a diverse and multidimensional phenomenon, it is possible to unite the existing contradictions into four main groups: informational, organizational, methodical and private (referring to private disciplines).

A. *Contradictions of Content Nature*

The main contradiction of informational aspect of specialist training is the discrepancy between the demands of society and the end results of pedagogical activity.

An active and detailed research of an existing educational paradigm will facilitate the creation of an education practice that meets the standards of modern realities. The currently trendy word “innovation” requires the creation of such a model of education in which the development of productive thinking of future specialists will ensure their readiness to independently and creatively respond to the emerging challenges of the time.

McKinsley analysts, in their research “Skill Shift: automation and future of labor force” attempted to evaluate taking USA and five European countries (France, Germany, Italy, Spain and Great Britain) as the example, which of the basic 25 labor skills will still be in demand in the future in five sectors: banking and insurance, energy and mining, health care, production and retail. The researchers came to the conclusion that the greatest increase in demand will be for technological skills (including coding) — 55%. Social and emotional skills will be appreciated more: the ability to work in a team, to lead others, to conduct negotiations and to sympathize. Their usage will take, on the average, 22% of the working hours (24% increase) [4].

The authors of already mentioned Russian foresight “Atlas...” highlighted 10 basic meta-professional competencies in the future professions: systematic thinking, intersectoral communication, project management, lean

manufacturing, coding/robotics/artificial intelligence, customer focus, multilingualism and multiculturalism, people work, work in the conditions of uncertainty, artistic skills. It is claimed that a degree of mastery of these competences provides for high work efficiency in the profession and allows to move between different industries [5].

Sadly, it has to be noted that mastering the technical skills of higher level is already the goal of many educational programs, yet social and emotional skills are mostly acquired beyond the borders of schools and other traditional educational institutions.

Resolving the contradictions of informational nature in educational process is possible with consequential realization of conventional goals of education.

Educational and ideological goal is expressed in supplying student with scientifically correct and systematic knowledge that increases their professional and general culture and broadens their mind

If professionally applied purpose is realized, then the students are able to solve the problems with consideration of their future professional and social and cultural activities.

Life and practical goals are achieved if the student uses the acquired knowledge in the life context (with family, on vacation, in difficult everyday situations etc).

The developing function of education is carried out when the inherent personal potential is realized, which is a result of purposeful personal development. It is assumed that a personality is developed both as a whole and in its individual parts. The future student is able to realistically appraise their capabilities and shows willingness to self-educate and self-improve .

During the realization of educational and mobilizing function of educational influence the students are set for humane attitude for people around them. The students show ethical behavior corresponding with the norms of morality and ethics, exercise kind and open attitude towards the world, accept themselves and the present reality.

B. Contradictions of Organizational Nature

Overcoming organizational challenges is connected, first of all, with traditional perception of student as an object of education. Modern organization of education process must possess a personality-oriented nature and assume maximum consideration of interests, needs and personal features of students. The student acts as an equal participant of the education process. The process itself is built on the principles of cooperation and conscious partnership between the student and the teacher. Wherein the independence of the students is developed and they feel personal responsibility for the results of the education. This applies the designation of materials for independent study and additional materials that have professional and research interest, the decision-making about selective courses, themes of course works, theses and scientific projects. However, as experience shows, many students show infantilism, unreadiness to take the

responsibility for the direction of their professional and personal development.

Yet another example of challenges in organizational aspect of education process in university is the well-known conservatism of students regarding new, innovative forms of education, the usage of which requires their constant involvement and high intellectual activity.

During the organization of education in the area of professional training it is also necessary to take into consideration some features of the Generation “Next” (according to M.Taylor's terminology), for which deep involvement in digital technologies is characteristic [6]. The main contradiction concerns the past experiences, values and attitudes of teachers and students. Teacher is rather a carrier of culture, in which authority of science is high — it arms with true knowledge. The important things for the modern generation of students are the personal opinion, personal needs, while existing values undergo revisions and are not always shared. This generation demands broader possibilities for itself and is only guided by its own needs and interests. The latter circumstance changes the picture of teacher-student interaction, sets the question of creating new forms and methods of education and changing the contents of education.

Organizational contradictions include the lately observed underestimation of researches on methods and technology of university education, which can be supported by a serious methodological basis. Realization of the new personal activity approach in higher education is possible on the way of connecting already known areas of modern education with the elements of innovative technologies. An ideal educational area is the area of education and development of the teachers themselves

The noted tendency of decreasing theoretical level and introduction of pragmatic training leads to the desire to replace broad academic education with practical skills development that form haphazardly and in isolation from many general- and private didactic training.

Another problem area can be highlighted — the declining level of interdisciplinary and inter-aspect connections. Still, interdisciplinarity and integration act as necessary parts of Russian politics in the area of education [7].

C. Contradictions of Methodical Nature

Yet another set of contradictions — is contradictions between new methods of teaching disciplines and teachers' need and sometimes unwillingness to abandon the time-tested approaches to their own pedagogical activities. On the other hand, the readiness of some teachers to use the newest pedagogical technologies encounters either the lack of technical capabilities, or the discrepancy between the available teaching materials and manuals, and the goals and toolkit within new the methods.

Regarding the challenges of methodical nature it is necessary to also mention the desire of some part of University teachers to give special importance to their course and make excessive demands to the student, which receives a

natural resistance from the students that display an exclusively pragmatic approach to the acquisition of narrow professional competencies.

For example, almost one third of the employees of IBM don't have a higher education diploma, but they underwent a training on the basis of educational centers of the company and possess all required skills and competences. The company also had developed a new education system that is used in P-TECH schools (Pathways in Technology Early College High Schools), with an enrollment from 9th to 14th years, and six-year education combines the traditional middle school program, with skills that are received in the college, with mentor system and practice in a workplace. In the Summer of 2018, such schools were attended by about 150 people. The graduates had received both high school diploma and associate degree in STEM (science, technology, engineering and mathematics) [8].

One of the researchers of the future of labor and education John Moravec, the author of the concept of Knowmad Society and the founder of Education Futures LLC. writes: "Their reality calls for an adaptable, personalized education option that simply cannot be provided solely by the current broadcast-based education model"

He calls the future generation "irrestrainable idea generators" (knowmads). He describes them in his book Knowmad Society as such: "Knowmads are creative, initiative people with good imagination that can work always, everywhere and with everyone". There are no age restrictions for knowmads, they are not afraid of failure, able to use their knowledge and experience in vastly different social and organizational configurations, have high motivation for cooperation and creation of social connections, are open for knowledge exchange and quickly learn by practice. The approach to education must change, it is necessary to form an educational environment that allows to receive new experience and knowledge. Education is everywhere; to learn, it's not necessary to go back to school, sit at a desk, or pause the career. The new type of education can be received even while chatting over a cup of coffee.

D. Contradictions of Specific Nature

Contradictions of specific nature can be followed by the example of changes in the area of language training since foreign language acts as one of the means of existence in any trade. Theorists and practitioners have long since realized that forming and developing of social and cultural competences are of special difficulty and, at the same time, actuality in language training. By social and cultural competences, the mastery of authentic verbal material and adequate speech behavior in social and professional areas are meant, i.e forming and mastering knowledge and the ability to comprehend national logic of thinking of native speakers [10].

Methodical support of formation of social and cultural competence takes into consideration a number of factors, among which should be mentioned the development of the stages of the process itself, organization of material and the

methods of its introduction (dosage and concentration of regional geographic information). Foreign language teacher's linguistic and cultural competences are just as important. It means, firstly, the system of knowledge about culture and values of a foreign society, its customs, traditions, literature, art, life, national characteristics and behavior models, about modern aspects of society etc. On the other hand, there is a high significance of the methodical mastery of the teacher, his mastery of methodical base while adhering to the basic methodical principles of language training: maximum objectivity of information, the use of comparative-applicative approach in learning the realities of native culture and the culture of the country of studied language, interactivity between the students and the teacher [11].

The modern researches in the area of formation of social and cultural competences react to the changed paradigm of language training: from the traditional system of volitional memorization of necessary knowledge to the developmental education set on the activation of mental activity of the student along with multidimensional development of their personal potential. Due to the results of the content and goals of language education emerges the need in the new science apparatus, in basic methodological principles, education models and practical tool set based on them.

The main concern in development of tools is connected with the creation of nationally oriented textbooks and manuals taking into account the national and psychological features of Russian students. This problem faces, mainly, the teachers in the area of business foreign language study: there's a huge choice of original textbooks, written for international audience. Whereas the level of language competence will significantly rise if nationality-specific features of students will be taken into consideration.

The process of creation of the new study materials requires the abidance to certain requirements that, in our opinion, may include the following list:

- the created textbook should be based on the principle of maximum expansion and development of individual features of the student through the stimulation of initiative and independence in their cognitive activity;
- manuals are developed by a team of authors with mandatory participation of Russian foreign language teachers;
- textbook materials possess societal and personal significance for the target audience;
- substantial value of the materials included in the textbook is determined by their authenticity, modernity for the foreign society, typicality for societal life of the country of the studied language
- the manuals take into consideration the latest achievements in linguistic, psychology, pedagogy, methodology and didactic, philosophy and other humanities;

- textbooks offer such a list of practical tasks, some of which aim for self-education and self-upbringing of language learners;
- when writing the study materials, the authors have a projected profile of the students;
- the authors use communicative-active, personality-oriented and social and cultural approaches, adhere to the general methodological principles of the creation of educational-methodical literature while following the specific principles of language study such as systematization, complexity, problem-solving, visual support.

In the era of multiculturalism and globalization in the modern linguodidactics and methodology, there is a shift of the accent towards investigative research. However, with relying on the specifics of national dominants when determining the goals and tasks of the language education of students, the practical results of a competently didactically organized language education can be strengthened manifold.

IV. DEVELOPING INNOVATIVE EDUCATIONAL ENVIRONMENT AS A CREATIVE PROCESS

The happening changes add to the optimism of the supporters of radical reforms: the new nature of education is approved, new methods and ways of active education are developed, new education technologies are implemented, the study materials are updated according to the new theoretical research, preconditions for the development of students' creativity are established, the elements of cooperation pedagogy are introduced and the accent is shifted from the controlled education process to the process of self-education and self-development.

The new education paradigm reviews the contents of the higher education and its methods, when the classical humanitarian values exist in harmony with the new ideological worldviews, which inevitably leads to the change of the traditional system of interaction with students. With this in mind, the process of interaction between the teacher and the student is carried out as between equal partners in a cooperative, didactically organized by the teacher solution of study tasks. The teacher is acting as a facilitator, positively stimulating and reinforcing the student's development and his self-actualization.

The creation of innovative educational environment will help to prepare a specialist of a new type, one that possesses competencies that allow for a positive development of his professionalism with an orientation at the personally significant directions of his self-education and self-upbringing [12]. Inevitably, the basic characteristics of the innovative system of professional training are its controllability, correlation with the psychological features of the students when mastering the material, programmability, activity of the process participants, independence and accounting of personal features of the students.

The creation of innovative system of education will allow solving a set of tasks. Firstly, the requirements for the

students' full intellectual and personal development will be formed. In addition, it'll become possible to solve the most typical and pronounced social adaptive problems of the students, which often are an obstacle in their career advancement. These include, first of all, the following: communicative incompetence, that is often manifested as an inability to make contact with colleagues; inability to comprehend the communicative behavior of a communication partner; difficulty in the process of socialization and social adaptation; lack of social skills and abilities; inability to solve professional and personal problems; unwillingness to make non-standard decisions etc. On the other hand, the creation of proposed system facilitates the maximum development and expression of uniqueness, originality and individuality embodied in the student. Creativity is the realization of this individuality, and its level of development and manifestation depends on personal qualities and the characteristics of the created educational environment.

V. CONCLUSION

The conventional competence paradigm demands the advancement of theory and practice of education towards its activation, fundamentalization, interdisciplinarity and focus on the practical result. The profile of a modern specialist includes general competences that, in conjunction with special competences, promote his professional and personal growth, allow him to integrate the acquired knowledge and skills into practice.

The contradictions and difficulties of educational process in higher school listed above can be overcome, among other things, on the way of an active search and update of the modern Russian education system, and its scientific apparatus, newest educational programs under development and innovative pedagogical technologies act as a guarantee of the success of undergoing reforms

The work towards creating innovative education system opens new possibilities in the development of modern programs of student development in professional education. Creative use of the listed above features of an innovative system of professional training based on optimal pedagogical interaction will allow creating a promising direction of teaching in higher education. All requirements for innovative models will be met: their educative and developing character considering the activity of the subject of learning, establishing psychological contact, creating a positive environment and psychological climate etc.

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